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# Transforming the Wholesale Market for Renewable Power

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# Some Perspective

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- 100 MW of new resources have come online due to Green Pricing Programs nationwide.
- Currently ~ 800,000 MW of total generation capacity in the US.
- Green Pricing Programs have contributed 0.0125% of installed capacity.
- Current administration aiming for 470,000 MW more of generation.
- Target: 10% of new as renewables = 47,000 MW.
- Need to grow incremental market by a factor of 800.



# Wholesale Speed Bumps

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- Willingness to pay studies clash with willingness to write checks.
- Price is key.
- Limitations at the wholesale level are a fundamental driver of green pricing at the retail level.
- Future growth of green power marketing depends heavily on innovation and broader commitments at the wholesale level.



# Topic Overview

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- Parallel Universe
- Rational and Transparent Ancillary Service Pricing
- New Market Mechanisms for Firming Intermittents
- RTO Transmission Planning
- Non-Market Valuation/IRP



# Parallel Universe

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- A world with enlightened energy planning.
- Thermal units utilized for capacity.
- Renewable resources used for energy.
- Hydro/thermal used for real-time balancing.
- Extract maximum value from solar, wind, biomass, geothermal, and tidal resources of which we know the west is extremely plentiful.
- Implication for California: buy thermal capacity on a forward basis, not energy on a forward basis.



# Ancillary Service Pricing

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- Transmission systems are more flexible than transmission engineers make them out to be.
- 20 years operating experience in California.
- What are the true costs of firming?
- Need for transparent pricing of this service.
- RTO Tariffs for intermittence management.



# New Market for Managing Imbalance Energy

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- New category of ancillary service: Imbalance Firming.
- ISO or 3<sup>rd</sup> party administered.
- Aggregate intermittent generation.
- Use portfolio effect to smooth out generation deviations.
- Create new market to purchase firming service from generators who choose to participate in the ancillary service market.
- Allow schedule coordinators to schedule firm blocks of renewable power, minimizing imbalance risk and reduce project financing costs.



# RTO Transmission Planning

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- FERC move towards Regional Transmission Organizations has major implications for green pricing.
- Texas and Wyoming load/resource discrepancy.
- Capacity factor vs. load proximity tradeoff.
- Renewable power community must take very active role in RTO planning process.





# Non-Market Valuation/IRP

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- New push for green power marketing at the wholesale level.
- Potential customers: IOUs, Co-ops, Munis, Federal Facilities buying at wholesale level.
- Emphasize values of fuel diversity, reduced emissions, and price risk management.
- Linkages to global efforts concerning climate change.
- Give the US some chance of meeting Kyotoesque targets.



# Contact Info

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